



(11) **EP 4 235 286 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
27.09.2023 Bulletin 2023/39

(51) International Patent Classification (IPC):
G02F 1/1343^(2006.01) G02F 1/1337^(2006.01)
G02F 1/1362^(2006.01)

(43) Date of publication A2:
30.08.2023 Bulletin 2023/35

(52) Cooperative Patent Classification (CPC):
G02F 1/134372; G02F 1/133707; H01L 27/124

(21) Application number: **23169095.9**

(22) Date of filing: **29.09.2018**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **15.01.2018 CN 201820061780 U**

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
18867303.2 / 3 745 191

(71) Applicant: **BOE Technology Group Co., Ltd.**
Beijing 100015 (CN)

(72) Inventors:
• **LONG, Chunpin**
Beijing, 100176 (CN)
• **LI, Hui**
Beijing, 100176 (CN)

(74) Representative: **Maiwald GmbH**
Elisenhof
Elisenstraße 3
80335 München (DE)

(54) **PIXEL STRUCTURE, ARRAY SUBSTRATE AND DISPLAY DEVICE**

(57) A pixel structure, an array substrate and a display device are provided. The pixel structure includes a first electrode (81) having a first groove group, a second groove group and a non-hollow portion (8); the first groove group includes a plurality of hollow first grooves (9), each first groove (9) includes a first end (A) and a

second end (B); the second groove group includes a plurality of hollow second grooves (10), each second groove (10) includes a third end (C) and a fourth end (D); and the third end (C) of at least one second groove (10) is staggered with respect to the second end (B) of the first groove (9) adjacent to the third end (C).

EP 4 235 286 A3



EUROPEAN SEARCH REPORT

Application Number

EP 23 16 9095

5

10

15

20

25

30

35

40

45

50

55

2

EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	CN 104 375 340 B (AU OPTRONICS CORP) 12 April 2017 (2017-04-12)	1, 2, 5, 7, 10, 11, 13-15	INV. G02F1/1343 G02F1/1337 G02F1/1362
Y	* paragraph [0074]; figure 1 * -----	8, 9	
X	US 2014/092353 A1 (MATSUSHIMA TOSHIHARU [JP]) 3 April 2014 (2014-04-03) * paragraphs [0097] - [0099], [0143] - [0145]; figures 4A, 10 * -----	1, 4, 5	
X	US 2012/138963 A1 (TSENG WEN-HSIEN [TW] ET AL) 7 June 2012 (2012-06-07) * paragraphs [0009], [0010], [0030]; figures 1A, 1B, 2A * -----	1-3, 5, 6, 11-15	
Y	CN 104 808 399 A (SHANGHAI AVIC OPTOELECTRONICS; TIANMA MICRO ELECTRONICS CO) 29 July 2015 (2015-07-29) * abstract; figures 3b, 3c * -----	8, 9	
			TECHNICAL FIELDS SEARCHED (IPC)
			G02F
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 23 August 2023	Examiner Queneuille, Julien
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 23 16 9095

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

23-08-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 104375340 B	12-04-2017	NONE	
US 2014092353 A1	03-04-2014	CN 103713432 A	09-04-2014
		JP 5767186 B2	19-08-2015
		JP 2014071309 A	21-04-2014
		KR 20140042716 A	07-04-2014
		TW 201415139 A	16-04-2014
		US 2014092353 A1	03-04-2014
		US 2016299390 A1	13-10-2016
		US 2019146287 A1	16-05-2019
		US 2020271998 A1	27-08-2020
		US 2022214583 A1	07-07-2022
US 2012138963 A1	07-06-2012	CN 102109723 A	29-06-2011
		TW 201224612 A	16-06-2012
		US 2012138963 A1	07-06-2012
CN 104808399 A	29-07-2015	NONE	